

SEQUENCE LISTING

<110> Brown, Arthur
Wible, Barbara
Yang, Qing

<120> Protein That Enhances Expression of Potassium Channels on Cell Surfaces and Nucleic Acids That Encode The Same

<130> 22884/04066

<150> 09/062,440
<151> 1998-04-17

<150> 09/712,495
<151> 2000-11-14

<160> 13

<170> PatentIn version 3.0

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Gly Pro Ser Asp Leu Ser Leu Ser Leu Pro Pro Gly Thr Ser Pro

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gta ggc tcc ccc agc ccc ctt gct tcc att cct ccc acc ctc ctg acc
144
Val Gly Ser Pro Ser Pro Leu Ala Ser Ile Pro Pro Thr Leu Leu Thr

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 192

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro

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ctg ccc cag cct gtg cac cct gac gtc acc atg aaa cca ctg ccc ttc
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Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe

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tac gaa gtc tac gga gag ctc atc cg^g cc^g acc acc ctt gc^g tc^c acc
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Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr

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90

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tc^c agt cag agg ttt gag gaa gc^c cac ttt acc ttt gca ct^c act ccc
 336

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro

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105

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cag cag ctg cag cag att ctc aca tc^c agg gag gtt ctg cca gg^a gc^c
 384

Gln Gln Leu Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala

115

120

125

aag tgc gat tat acc ata caa gtg cag ctc agg ttc tgt ctc tgt gag
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Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu

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acc agc tgc ccc cag gag gac tat ttc ccc cct aac ctc ttt gtc aag
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Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
 145 150 155 160

 gtt aat ggg aaa ctc tgc ccc ctg ccg ggt tac ctc cct cca acc aag
 528
 Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
 165 170 175

 aat gga gct gag ccc aag agg cct agt cgt cca atc aac atc aca ccc
 576
 Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro
 180 185 190

 ctg gct cgt ctc tca gcc act gtt ccc aac acc ata gtg gtt aac tgg
 624
 Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
 195 200 205

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 672
 Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg
 210 215 220

 cag ttg act gca ggg acc ctc cta caa aag ctc aga gcc aag ggt atc
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 225 230 235 240

 cgg aat cca gac cat tcc cga gca ctg atc aag gag aaa ttg act gct
 768
 Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
 245 250 255

 gac ccc gac agt gaa gtg gct act aca agt ctc cgg gtg tca ctc atg

816

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met

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864

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr

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912

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn

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gag aaa aag cca aca tgg acg tgc cct gtg tgt gac aag aag gct ccc
960

Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro

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1008

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser

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Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys

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Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly

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 Ser Glu Asn Lys Lys Arg Val Glu Val Ile Asp Leu Thr Ile Glu Ser

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 Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Pro Val

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acc tcg gct gcc att cca gcc ctt cct gga agc aaa gga gcc ctg acc
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 Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Ala Leu Thr

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 Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr

435 440 445

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 1392
 Leu Gly Ser Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro

450 455 460

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 Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe

465 470 475 480

ctt cag act gag agt cag cac tac agc cct tca gtt atc act tca cta
 1488

Leu Gln Thr Glu Ser Gln His Tyr Ser Pro Ser Val Ile Thr Ser Leu

485

490

495

gat gag cag gac acc ctt ggc cac ttc ttc caa ttc cg^g gga acc cct
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Asp Glu Gln Asp Thr Leu Gly His Phe Phe Gln Phe Arg Gly Thr Pro

500

505

510

ccc cac ttc ctg ggc cca ctg gcc ccc aca ttg ggg agc tct cac cgc
 1584

Pro His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Arg

515

520

525

agc gcc act cca gca ccc gct cct ggc cgt gtc agc agc att gtg gct
 1632

Ser Ala Thr Pro Ala Pro Ala Pro Gly Arg Val Ser Ser Ile Val Ala

530

535

540

cct ggg agt tcc ttg agg gaa ggg cat gga gga ccc ctg cct tcc ggt
 1680

Pro Gly Ser Ser Leu Arg Glu Gly His Gly Pro Leu Pro Ser Gly

545

550

555

560

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Pro Ser Leu Thr Gly Cys Arg Ser Asp Val Ile Ser Leu Asp

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Val Gly Ser Pro Ser Pro Leu Ala Ser Ile Pro Pro Thr Leu Leu Thr
35 40 45

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
50 55 60

Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
65 70 75 80

Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr
85 90 95

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro
100 105 110

Gln Gln Leu Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala
115 120 125

Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu
130 135 140

Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
145 150 155 160

Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
165 170 175

Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro

180

185

190

Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
195 200 205

Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg
210 215 220

Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
225 230 235 240

Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
245 250 255

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met
260 265 270

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr
275 280 285

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn
290 295 300

Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro
305 310 315 320

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser
 325 330 335

Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys
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Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly
355 360 365

Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Glu Gly Asn Gln

370

375

380

Ser Glu Asn Lys Lys Arg Val Glu Val Ile Asp Leu Thr Ile Glu Ser
 385 390 395 400

Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Pro Val
405 410 415

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Ala Leu Thr
420 425 430

Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr
435 440 445

Leu Gly Ser Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro
450 455 460

Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe
465 470 475 480

Leu Gln Thr Glu Ser Gln His Tyr Ser Pro Ser Val Ile Thr Ser Leu
485 490 495

Asp Glu Gln Asp Thr Leu Gly His Phe Phe Gln Phe Arg Gly Thr Pro
500 505 510

Pro His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Arg
515 520 525

Ser Ala Thr Pro Ala Pro Ala Pro Gly Arg Val Ser Ser Ile Val Ala
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Pro Ser Leu Thr Gly Cys Arg Ser Asp Val Ile Ser Leu Asp

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96
ggg ccc tct gat ctc tcc ctt ctc tct ttg ccc cct ggc acc tct cct
Gly Pro Ser Asp Leu Ser Leu Leu Ser Leu Pro Pro Gly Thr Ser Pro

20	25	30
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144
gta ggc tcc cct ggt cct cta gct ccc att ccc cca acg ctg ttg gcc
Val Gly Ser Pro Gly Pro Leu Ala Pro Ile Pro Pro Thr Leu Leu Ala

35	40	45
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192
cct ggc acc ctg ctg ggc ccc aag cgt gag gtg gac atg cac ccc cct
Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro

50	55	60
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240
ctg ccc cag cct gtg cac cct gat gtc acc atg aaa cca ttg ccc ttc
Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe

65	70	75	80
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tat gaa gtc tat ggg gag ctc atc cg_g ccc acc acc ctt gca tcc act
 288
 Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr

85 90 95

tct agc cag cgg ttt gag gaa gc_g cac ttt acc ttt gcc ctc aca ccc
 336
 Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro

100 105 110

cag caa gtg cag cag att ctt aca tcc aga gag gtt ctg cca gga gcc
 384
 Gln Gln Val Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala

115 120 125

aaa tgt gat tat acc ata cag gtg cag cta agg ttc tgt ctc tgt gag
 432
 Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu

130 135 140

acc agc tgc ccc cag gaa gat tat ttt ccc ccc aac ctc ttt gtc aag
 480
 Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys

145 150 155 160

gtt aat ggg aaa ctg tgc ccc ctg ccg ggt tac ctt ccc cca acc aag
 528
 Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys

165 170 175

aat ggg gcc gag ccc aag agg ccc agc cgc ccc atc aac atc aca ccc
 576
 Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro

180 185 190

ctg gct cga ctc tca gcc act gtt ccc aac acc att gtg gtc aat tgg
 624

Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp

195

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205

tca tct gag ttc gga cg^g aat tac tcc ttg tct gtg tac ctg gtg agg
 672

Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg

210

215

220

cag ttg act gca gga acc ctt cta caa aaa ctc aga gca aag ggt atc
 720

Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile

225

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235

240

cg^g aac cca gac cac tcg cg^g gca ctg atc aag gag aaa ttg act gct
 768

Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala

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250

255

gac cct gac agt gag gtg gcc act aca agt ctc cg^g gtg tca ctc atg
 816

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met

260

265

270

tgc ccg cta ggg aag atg cg^c ctg act gtc cct tgt cgt gcc ctc acc
 864

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr

275

280

285

tgt gcc cac ctg cag agc ttc gat gct gcc ctt tat cta cag atg aat
 912

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn

290

295

300

gag aag aag cct aca tgg aca tgt cct gtg tgt gac aag aag gct ccc
 960

Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro

305 310 315 320

tat gaa tct ctt atc att gat ggt tta ttt atg gag att ctt agt tcc
 1008

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Ser Ser

325 330 335

tgt tca gat tgt gat gag atc caa ttc atg gaa gat gga tcc tgg tgc
 1056

Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys

340 345 350

cca atg aaa ccc aag aag gag gca tct gag gtt tgc ccc ccg cca ggg
 1104

Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly

355 360 365

tat ggg ctg gat ggc ctc cag tac agc cca gtc cag ggg gga gat cca
 1152

Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Gly Gly Asp Pro

370 375 380

tca gag aat aag aag aag gtc gaa gtt att gac ttg aca ata gaa agc
 1200

Ser Glu Asn Lys Lys Val Glu Val Ile Asp Leu Thr Ile Glu Ser

385 390 395 400

tca tca gat gag gag gat ctg ccc cct acc aag aag cac tgt tct gtc
 1248

Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Ser Val

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acc tca gct gcc atc ccg gcc cta cct gga agc aaa gga gtc ctg aca
 1296

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Val Leu Thr

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425

430

tct ggc cac cag cca tcc tcg gtg cta agg agc cct gct atg ggc acg
 1344

Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr

435

440

445

ttg ggt ggg gat ttc ctg tcc agt ctc cca cta cat gag tac cca cct
 1392

Leu Gly Gly Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro

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gcc ttc cca ctg gga gcc gac atc caa ggt tta gat tta ttt tca ttt
 1440

Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe

465

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475

480

ctt cag aca gag agt cag cac tat ggc ccc tct gtc atc acc tca cta
 1488

Leu Gln Thr Glu Ser Gln His Tyr Gly Pro Ser Val Ile Thr Ser Leu

485

490

495

gat gaa cag gat gcc ctt ggc cac ttc ttc cag tac cga ggg acc cct
 1536

Asp Glu Gln Asp Ala Leu Gly His Phe Phe Gln Tyr Arg Gly Thr Pro

500

505

510

tct cac ttt ctg ggc cca ctg gcc ccc acg ctg ggg agc tcc cac tgc
 1584

Ser His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Cys

515

520

525

agc gcc act ccg gcg ccc cct cct ggc cgt gtc agc agc att gtg gcc
 1632

Ser Ala Thr Pro Ala Pro Pro Gly Arg Val Ser Ser Ile Val Ala

530

535

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cct ggg ggg gcc ttg agg gag ggg cat gga gga ccc ctg ccc tca ggt
 1680

Pro Gly Gly Ala Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly

545

550

555

560

ccc tct ttg act ggc tgt cgg tca gac atc att tcc ctg gac tga
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Pro Ser Leu Thr Gly Cys Arg Ser Asp Ile Ile Ser Leu Asp

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 20 25 30

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 35 40 45

Pro Gly Thr Leu Leu Gly Pro Lys Arg Glu Val Asp Met His Pro Pro
 50 55 60

Leu Pro Gln Pro Val His Pro Asp Val Thr Met Lys Pro Leu Pro Phe
 65 70 75 80

Tyr Glu Val Tyr Gly Glu Leu Ile Arg Pro Thr Thr Leu Ala Ser Thr
 85 90 95

Ser Ser Gln Arg Phe Glu Glu Ala His Phe Thr Phe Ala Leu Thr Pro
 100 105 110

Gln Gln Val Gln Gln Ile Leu Thr Ser Arg Glu Val Leu Pro Gly Ala
 115 120 125

Lys Cys Asp Tyr Thr Ile Gln Val Gln Leu Arg Phe Cys Leu Cys Glu
 130 135 140

Thr Ser Cys Pro Gln Glu Asp Tyr Phe Pro Pro Asn Leu Phe Val Lys
 145 150 155 160

Val Asn Gly Lys Leu Cys Pro Leu Pro Gly Tyr Leu Pro Pro Thr Lys
 165 170 175

Asn Gly Ala Glu Pro Lys Arg Pro Ser Arg Pro Ile Asn Ile Thr Pro
 180 185 190

Leu Ala Arg Leu Ser Ala Thr Val Pro Asn Thr Ile Val Val Asn Trp
 195 200 205

Ser Ser Glu Phe Gly Arg Asn Tyr Ser Leu Ser Val Tyr Leu Val Arg
 210 215 220

Gln Leu Thr Ala Gly Thr Leu Leu Gln Lys Leu Arg Ala Lys Gly Ile
 225 230 235 240

Arg Asn Pro Asp His Ser Arg Ala Leu Ile Lys Glu Lys Leu Thr Ala
 245 250 255

Asp Pro Asp Ser Glu Val Ala Thr Thr Ser Leu Arg Val Ser Leu Met
 260 265 270

Cys Pro Leu Gly Lys Met Arg Leu Thr Val Pro Cys Arg Ala Leu Thr
 275 280 285

Cys Ala His Leu Gln Ser Phe Asp Ala Ala Leu Tyr Leu Gln Met Asn
 290 295 300

Glu Lys Lys Pro Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro
 305 310 315 320

Tyr Glu Ser Leu Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Ser Ser
 325 330 335

Cys Ser Asp Cys Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys
 340 345 350

Pro Met Lys Pro Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly
 355 360 365

Tyr Gly Leu Asp Gly Leu Gln Tyr Ser Pro Val Gln Gly Gly Asp Pro
 370 375 380

Ser Glu Asn Lys Lys Lys Val Glu Val Ile Asp Leu Thr Ile Glu Ser
 385 390 395 400

Ser Ser Asp Glu Glu Asp Leu Pro Pro Thr Lys Lys His Cys Ser Val
 405 410 415

Thr Ser Ala Ala Ile Pro Ala Leu Pro Gly Ser Lys Gly Val Leu Thr
 420 425 430

Ser Gly His Gln Pro Ser Ser Val Leu Arg Ser Pro Ala Met Gly Thr
 435 440 445

Leu Gly Gly Asp Phe Leu Ser Ser Leu Pro Leu His Glu Tyr Pro Pro
 450 455 460

Ala Phe Pro Leu Gly Ala Asp Ile Gln Gly Leu Asp Leu Phe Ser Phe
 465 470 475 480

Leu Gln Thr Glu Ser Gln His Tyr Gly Pro Ser Val Ile Thr Ser Leu
 485 490 495

Asp Glu Gln Asp Ala Leu Gly His Phe Phe Gln Tyr Arg Gly Thr Pro
 500 505 510

Ser His Phe Leu Gly Pro Leu Ala Pro Thr Leu Gly Ser Ser His Cys
 515 520 525

Ser Ala Thr Pro Ala Pro Pro Pro Gly Arg Val Ser Ser Ile Val Ala
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Pro Ser Leu Thr Gly Cys Arg Ser Asp Ile Ile Ser Leu Asp
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50 55 60

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35						40							45		
Pro	Gly	Thr	Leu	Leu	Gly	Pro	Lys	Arg	Glu	Val	Asp	Met	His	Pro	Pro
50						55						60			
Leu	Pro	Gln	Pro	Val	His	Pro	Asp	Val	Thr	Met	Lys	Pro	Leu	Pro	Phe
65						70				75			80		
Tyr	Glu	Val	Tyr	Gly	Glu	Leu	Ile	Arg	Pro	Thr	Thr	Leu	Ala	Ser	Thr
85								90					95		
Ser	Ser	Gln	Arg	Phe	Glu	Glu	Ala	His	Phe	Thr	Phe	Ala	Leu	Thr	Pro
100								105					110		
Gln	Gln	Xaa	Gln	Gln	Ile	Leu	Thr	Ser	Arg	Glu	Val	Leu	Pro	Gly	Ala
115						120						125			
Lys	Leu	Asp	Tyr	Thr	Ile	Gln	Val	Gln	Leu	Arg	Phe	Cys	Leu	Cys	Glu
130						135					140				
Thr	Ser	Leu	Pro	Gln	Glu	Asp	Tyr	Phe	Pro	Pro	Asn	Leu	Phe	Val	Lys
145						150				155			160		
Val	Asn	Gly	Lys	Leu	Cys	Pro	Leu	Pro	Gly	Tyr	Leu	Pro	Pro	Thr	Lys
165								170					175		
Asn	Gly	Ala	Glu	Pro	Lys	Arg	Pro	Ser	Arg	Pro	Ile	Asn	Ile	Thr	Pro
180								185					190		
Lys	Ala	Arg	Leu	Ser	Ala	Thr	Val	Pro	Asn	Thr	Ile	Val	Val	Asn	Trp
195								200					205		
Ser	Ser	Glu	Phe	Gly	Arg	Asn	Thr	Ser	Leu	Ser	Val	Tyr	Leu	Val	Arg
210								215					220		
Gln	Leu	Thr	Ala	Gly	Thr	Leu	Leu	Gln	Lys	Leu	Arg	Ala	Lys	Gly	Ile
225								230					235		240
Arg	Asn	Pro	Asp	His	Ser	Arg	Ala	Leu	Ile	Lys	Gly	Lys	Leu	Thr	Ala
245									250				255		
Asp	Pro	Asp	Ser	Gly	Val	Ala	Thr	Thr	Ser	Leu	Arg	Val	Ser	Leu	Met
260									265				270		
Cys	Pro	Leu	Gly	Lys	Met	Arg	Leu	Thr	Val	Pro	Cys	Arg	Ala	Leu	Thr

275

280

285

Cys	Ala	His	Leu	Gln	Ser	Phe	Ser	Ala	Ala	Leu	Tyr	Leu	Gln	Met	Asn
290						295					300				
Glu	Lys	Pro	Thr	Trp	Thr	Cys	Pro	Val	Cys	Asp	Lys	Lys	Ala	Pro	Trp
305					310				315					320	
Glu	Ser	Leu	Ile	Ile	Asp	Gly	Leu	Phe	Met	Glu	Ile	Leu	Xaa	Ser	Cys
					325				330				335		
Ser	Asp	Cys	Asp	Glu	Ile	Gln	Phe	Met	Glu	Asp	Gly	Ser	Thr	Cys	Pro
					340			345				350			
Met	Lys	Pro	Lys	Lys	Glu	Ala	Ser	Glu	Val	Cys	Pro	Pro	Pro	Gly	Tyr
					355			360			365				
Gly	Leu	Asp	Gly	Leu	Gln	Tyr	Ser	Pro	Val	Gln	Xaa	Gly	Xaa	Pro	Ser
					370		375			380					
Glu	Asn	Lys	Lys	Xaa	Val	Glu	Val	Ile	Asp	Leu	Thr	Ile	Glu	Ser	Ser
					385		390			395			400		
Ser	Asp	Glu	Glu	Asp	Leu	Pro	Pro	Thr	Lys	Lys	His	Cys	Xaa	Val	Thr
					405			410					415		
Ser	Ala	Ala	Ile	Pro	Ala	Leu	Pro	Gly	Ser	Lys	Gly	Xaa	Leu	Thr	Ser
					420			425			430				
Gly	His	Gln	Pro	Ser	Ser	Val	Leu	Arg	Ser	Pro	Ala	Met	Gly	Thr	Leu
					435		440				445				
Gly	Xaa	Asp	Phe	Leu	Ser	Ser	Leu	Pro	Leu	His	Glu	Tyr	Pro	Pro	Ala
					450		455			460					
Phe	Pro	Leu	Gly	Ala	Asp	Ile	Gln	Gly	Leu	Asp	Leu	Phe	Ser	Phe	Leu
					465		470			475			480		
Gln	Thr	Glu	Ser	Gln	Tyr	Xaa	Pro	Ser	Val	Ile	Thr	Ser	Leu	Asp	Glu
					485			490			495				
Gln	Asp	Xaa	Leu	Gly	His	Phe	Phe	Gln	Xaa	Arg	Phe	Thr	Pro	Xaa	His
					500			505				510			
Phe	Leu	Gly	Pro	Leu	Ala	Pro	Thr	Leu	Gly	Ser	Ser	His	Xaa	Ser	Ala
					515			520			525				
Thr	Pro	Ala	Pro	Xaa	Pro	Gly	Arg	Val	Ser	Ser	Ile	Val	Ala	Pro	Gly

530

535

540

Xaa Xaa Leu Arg Glu Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser
 545 550 555 560

Leu Thr Gly Cys Arg Ser Asp Ile Xaa Ser Leu Asp
 565 570

<210> 7

<211> 99

<212> PRT

<213> Homo sapiens

<400> 7

Thr Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro Tyr Glu Ser Leu
 1 5 10 15

Ile Ile Asp Gly Leu Phe Met Glu Ile Leu Asn Ser Cys Ser Asp Cys
 20 25 30

Asp Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Cys Pro Met Lys Pro
 35 40 45

Lys Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly Tyr Gly Leu Asp
 50 55 60

Gly Leu Gln Tyr Ser Pro Val Gln Glu Gly Asn Gln Ser Glu Asn Lys
 65 70 75 80

Lys Arg Val Glu Val Ile Asp Leu Thr Ile Glu Ser Ser Ser Asp Glu
 85 90 95

Glu Asp Leu

<210> 8

<211> 167

<212> PRT

<213> Homo sapiens

<400> 8

Pro Pro Thr Lys Lys His Cys Ser Val Thr Ser Ala Ala Ile Pro Ala
 1 5 10 15

Leu Pro Gly Ser Lys Gly Val Leu Thr Ser Gly His Gln Pro Ser Ser
 20 25 30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Gly Asp Phe Leu Ser
 35 40 45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
 50 55 60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His
 65 70 75 80

Tyr Gly Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Ala Leu Gly
 85 90 95

His Phe Phe Gln Tyr Arg Gly Thr Pro Ser His Phe Leu Gly Pro Leu
 100 105 110

Ala Pro Thr Leu Gly Ser Ser His Cys Ser Ala Thr Pro Ala Pro Pro
 115 120 125

Pro Gly Ala Val Ser Ser Ile Val Ala Pro Gly Gly Ala Leu Arg Glu
 130 135 140

Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg
 145 150 155 160

Ser Asp Ile Ile Ser Leu Asp
 165

<210> 9
<211> 167
<212> PRT
<213> Homo sapiens

<400> 9

Pro Pro Thr Lys Lys His Cys Pro Val Thr Ser Ala Ala Ile Pro Ala
 1 5 10 15

Leu Pro Gly Ser Lys Gly Ala Leu Thr Ser Gly His Gln Pro Ser Ser
 20 25 30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Ser Asp Phe Leu Ser
 35 40 45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
 50 55 60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His

65	70	75	80
Tyr Ser Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Thr Leu Gly			
85	90	95	
His Phe Phe Gln Phe Arg Gly Thr Pro Pro His Phe Leu Gly Pro Leu			
100	105	110	
Ala Pro Thr Leu Gly Ser Ser His Arg Ser Ala Thr Pro Ala Pro Ala			
115	120	125	
Pro Gly Arg Val Ser Ser Ile Val Ala Pro Gly Ser Ser Leu Arg Glu			
130	135	140	
Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg			
145	150	155	160
Ser Asp Val Ile Ser Leu Asp			
165			
<210> 10			
<211> 98			
<212> PRT			
<213> synthetic construct			
<220>			
<221> misc_feature			
<222> (25)..(25)			
<223> Xaa = serine or asparagine			
<220>			
<221> misc_feature			
<222> (61)..(61)			
<223> Xaa = glycine or glutamic acid			
<220>			
<221> misc_feature			
<222> (63)..(63)			
<223> Xaa = aspartic acid or asparagine			
<220>			
<221> misc_feature			
<222> (64)..(64)			
<223> Xaa = proline or glutamine			

<400> 10

Trp Thr Cys Pro Val Cys Asp Lys Lys Ala Pro Tyr Glu Ser Leu Ile
1 5 10 15

Ile Asp Gly Leu Phe Met Glu Ile Leu Xaa Ser Cys Ser Asp Cys Asp
20 25 30

Glu Ile Gln Phe Met Glu Asp Gly Ser Trp Leu Pro Met Lys Pro Lys
35 40 45

Lys Glu Ala Ser Glu Val Cys Pro Pro Pro Gly Tyr Gly Leu Asp Gly
50 55 60

Leu Gln Tyr Ser Pro Val Gln Xaa Gly Xaa Pro Ser Glu Asn Lys Lys
65 70 75 80

Xaa Val Glu Val Ile Asp Leu Thr Ile Glu Ser Ser Ser Asp Glu Glu
85 90 95

Asp Leu

<210> 11

<211> 167

<212> PRT

<213> Rattus norvegicus

<220>

<221> misc_feature

<222> (8)..(8)

<223> Xaa = serine or proline

<220>

<221> misc_feature

<222> (23)..(23)

<223> Xaa = valine or alanine

<220>

<221> misc_feature

<222> (44)..(44)

<223> Xaa = glycine or serine

<220>

<221> misc_feature
<222> (82)..(82)
<223> Xaa = glycine or serine

<220>
<221> misc_feature
<222> (94)..(94)
<223> Xaa = alanine or threonine

<220>
<221> misc_feature
<222> (101)..(101)
<223> Xaa = tyrosine or phenylalanine

<220>
<221> misc_feature
<222> (106)..(106)
<223> Xaa = serine or proline

<220>
<221> misc_feature
<222> (121)..(121)
<223> Xaa = cysteine or alanine

<220>
<221> misc_feature
<222> (128)..(128)
<223> Xaa = proline or alanine

<220>
<221> misc_feature
<222> (140)..(140)
<223> Xaa = glycine or serine

<220>
<221> misc_feature
<222> (141)..(141)
<223> Xaa = alanine or serine

<220>

<221> misc_feature
<222> (164)..(164)
<223> Xaa = isoleucine or valine

<400> 11

Pro Pro Thr Lys Lys His Cys Xaa Val Thr Ser Ala Ala Ile Pro Ala
1 5 10 15

Leu Pro Gly Ser Lys Gly Xaa Leu Thr Ser Gly His Gln Pro Ser Ser
20 25 30

Val Leu Arg Ser Pro Ala Met Gly Thr Leu Gly Xaa Asp Phe Leu Ser
35 40 45

Ser Leu Pro Leu His Glu Tyr Pro Pro Ala Phe Pro Leu Gly Ala Asp
50 55 60

Ile Gln Gly Leu Asp Leu Phe Ser Phe Leu Gln Thr Glu Ser Gln His
65 70 75 80

Tyr Xaa Pro Ser Val Ile Thr Ser Leu Asp Glu Gln Asp Xaa Leu Gly
85 90 95

His Phe Phe Gln Xaa Arg Gly Thr Pro Xaa His Phe Leu Gly Pro Leu
100 105 110

Ala Pro Thr Leu Gly Ser Ser His Xaa Ser Ala Thr Pro Ala Pro Xaa
115 120 125

Pro Gly Arg Val Ser Ser Ile Val Ala Pro Gly Xaa Xaa Leu Arg Glu
130 135 140

Gly His Gly Gly Pro Leu Pro Ser Gly Pro Ser Leu Thr Gly Cys Arg
145 150 155 160

Ser Asp Ile Xaa Ser Leu Asp
165

<210> 12
<211> 26
<212> PRT
<213> Rattus norvegicus

<400> 12

Ala Thr Gly Ala Ala Gly Ala Thr Cys Ala Ala Ala Gly Ala Gly Cys

1

5

10

15

Thr Thr Thr Ala Cys Cys Gly Ala Cys Gly
20 25

<210> 13

<211> 23

<212> PRT

<213> Rattus norvegicus

<400> 13

Thr Cys Ala Gly Thr Cys Cys Ala Gly Gly Gly Ala Ala Ala Thr Cys
1 5 10 15

Ala Thr Gly Ala Cys Cys Gly
20